Jayesh Bellare

Education:

1990 Post Doctoral Fellow, M.I.T., Cambridge, USA. (Materials Science & Engineering)
1989 Post Doctoral Fellow, Univ of Massachusetts, Amherst, USA. (Math & Polymer Sci & Engg)
1988 Ph.D., Chemical Engineering, University of Minnesota, Minneapolis, U.S.A
1982 B.Tech., Chemical Engineering, I.I.T., Bombay

Employment:

1. IIT Bombay Institute Chair Professor: Jan-2012 to date
2. Univ of Minnesota USA Piercy Distinguished Visiting Professor: Mar-2008 to Nov-2008
3. IIT Bombay Head Biosciences and Bioengineering: March 2002 – April 2005
4. IIT Bombay Professor: Oct 1998 to date
5. IIT Bombay Associate Professor: July 1994 to Oct 1998
6. IIT Bombay Assistant Professor: July 1990 to July 1994

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PhD Thesis: Cryo-electron & optical microscopy of surfactant microstructures, Guides: LE Scriven and H Ted Davis.

Fields of expertise:

1. Biomedical devices: dialysis membranes, extracorporeal membrane oxygenator, ECMO, ventilator design, contamination containment
2. Electron microscopy (especially cryo-TEM)
3. Nanotechnology: nanomedicines and drug delivery, across various medicinal systems
4. Biomedical implants: scaffolds, tissue engineering, regenerative medicine
5. Biomaterials and implants for regenerative medicine
6. Setting up of cGMP facilities for biomedical devices

Translational work and technology already developed:

1. Fiber-optic drawing line and light source: for use in endoscopic and laparoscopic surgery to illuminate intra-peritoneally (TRL-9)
2. Membrane pressing plant: for large-scale pharmaceutical sterilization and downstream processing by filtration (TRL-9)
3. Nano-carboplatin for retinoblastoma: drug delivery to the retina for cancer treatment (TRL-8)
4. Bio-artificial pancreas: implantable bioreactor for cell therapy of insulin-dependent diabetics (TRL-5)
5. Hollow fiber membrane plant and membranes: For CKD patients for superior kidney dialysis (TRL-6)
6. Trans cathetral occlusion device: to close holes in heart (PDA) (TRL-4)
7. Bone void filler scaffold: 3D scaffold to help fill bone cysts and ridge augmentation (TRL-7)
8. Resorbable 3D-printed customized bone graft: CT_based graded porosity implant for fracture repair (TRL-4)
9. Resorbable Bone screw: to anchor ACL repair (TRL-4)

Papers and patents:

Over 230 papers published. H-index of 34. Book chapters: 5, Patents: over 20 at various stages. Three technologies transferred to industry and hospitals.

Awards and Honours (last 15 years):

2018 Excellence in Teaching Award, Department of Chemical Engineering, IIT Bombay
2018 Lifetime Achievement Award, Government of India, Ministry of Ayush, CCRH
2018 3D printing World Award 2017 “Innovator in New Inventions in Medical & Health Care”
2011 Elected as a Fellow of the Maharashtra Academy of Sciences
2010 NASI-Reliance Industries Platinum Jubilee Awards For Application Oriented Innovations
2010 Elected as a Fellow of the Electron Microscope Society of India
2008 Elected as a Fellow of the Indian National Academy of Engineering
2007 Elected as a Fellow of the National Academy of Sciences, India

Brief biodata:

Dr. Jayesh Bellare is "Institute Chair Professor" of Chemical Engineering at the Indian Institute of Technology, Bombay. He is an elected Fellow of several leading science and engineering academies of India, namely the **National Academy of Science, India,** the **Indian National Academy of Engineering**, the **Maharashtra Academy of Sciences,** and the **Electron Microscopy Society of India**. He was the first Head of IIT's School of Biosciences and Bioengineering. He has more than twenty years of worldwide experience in microscopy (especially cryo-TEM), biomedical devices, materials and implants for regenerative medicine, and nantechnology, particularly nanomedicines spanning across various medicinal systems.

Jayesh Bellare has set up a cGMP facility at IITB that has received a trial manufacturing license from DCGI/CDSCO for a bone repair scaffold. He is the lead PI for a DCGI/CDSCO approved first-in-human study at AIIMS Delhi for this regenerative scaffold, a first as an academic IIT sponsor. He has developed and transferred other technologies in the biomedical and nanotechnology fields.

Jayesh Bellare did his schooling at the Bombay Scottish School, Mumbai. He did his B.Tech.in Chemical Engineering from I.I.T. Bombay (with First rank, 1978-82, H3). He did his Ph.D. from the University of Minnesota, Minneapolis, U.S.A. He was post-doctoral fellow at U-Mass, Amherst and then at M.I.T., U.S.A. He has been visiting researcher at leading universities like the Technion-Israel Institute of Technology, Northwestern University, USA, and ICT (formerly UDCT), Mumbai. He has been honored as the "Piercy Distinguished Visiting Professor" at the University of Minnesota, USA.

Dr. Bellare's special interests are in nanotechnology, biomedical devices and cryo-electron microscopy. Dr. Bellare works closely with the medical fraternity and consults for industry, with whom he runs several collaborative projects. He has won several national and international awards like the Lifetime Achievement Award, Government of India Ministry of Ayush, for his work in nanomedicines, the *Presidential Award* of the Electron Microscopy Society of America, the ICI award for the "Most outstanding Chemical Engineer" by the Indian Institute of Chemical Engineer and the NASI-Reliance Platinum Jubilee Award for application-oriented research.

Prof. Bellare is an astute technology evaluator. Therefore he is active as a consultant for companies and as member of Government panels. He is on the research councils or committees of several leading institutions of CSIR, DBT, and DST, and he has also served on the board of directors or board of advisors for several companies.